

DOE REVIEW
COMPLETED

18 November 1946

MEMORANDUM TO: Assistant Director for Reports and Estimates

SUBJECT: Nuclear Energy - Atomic Bomb

1. There are several conditions which indicate that it is imperative for CIG to initiate and have in operation at the earliest possible time the previously discussed plan for radio-active by-product surveillance of the atmosphere in order to determine where an atomic explosion has occurred outside the United States.

2.

a. During the middle of 1945, Dr. Irving Langmuir, one of the world's outstanding physical chemists, was allowed to visit a large number of the Russian research institutions and to freely mingle with Russian scientists. On his return to the United States, Dr. Langmuir reported that in his opinion the Russians would have sufficient experience in nuclear physics within two years that they would be able to create an atomic explosion, and probably within another year to have an operative atomic bomb.

b. The above would indicate that the Russians, with no outside help, were expected to create an atomic explosion during the middle of 1947. Since Dr. Langmuir's visit, the Smyth report was published, and the Russians have acquired a large number of German scientists, including some capable nuclear physicists who are known to be working on the problem for the Russians.

3.

a. In Report No. 63, "Activities of the Second Institute of Physics of the University of Vienna", J.I.O.A., October 1945, members of the Institute state that given a supply of radium and uranium, and allowed to return to Vienna, where certain of their materials and equipment are stored, they would be able to "complete their work in three to six months".

SECRET

- 2 -

b. The Institute members' claims apparently are valid inasmuch as Professor Smyth spent considerable time at the Institute, revisiting it a number of times. He insisted that the most stringent type of control be placed over the scientific activities of the group, as well as on close individual observation.

c. It is known that Russia has made substantial efforts to induce several members of the Institute to work for Russia.

4. In view of the above information the undersigned does not agree with the frequently expressed opinion that Russia can not produce an atomic explosion before 1950, and an atomic bomb before 1955. The undersigned considers the Russians to be capable of producing an atomic explosion in 1947 by utilizing foreign assistance not previously available to them.

5.

a. Of further interest on this subject is an article in the November issue of "The Atlantic Monthly", titled, "The Atomic Bomb Tests at Lake Sindorsk", by Dr. Louis N. Ridenour, a well known physicist who was associated with radar developments during the war.

b. In the article, assumed to have been written during the latter part of this century, Dr. Ridenour indicates that the United States Government failed to send a competent observer to an "atomic energy explosion demonstration" at Lake Sindorsk, Russia, on 1 January 1947, and therefore, at the assumed time of the article, the United States was not sure the demonstration was an authentic atomic explosion.

c. Dr. Ridenour advances the opinion that the only positive method by which an authentic atomic explosion can be determined is to observe for the accompanying blue glow, due to ionization of the air, which surrounds the ball of fire and the cloud from the explosion in its earlier stages, which blue cloud can not be faked.

d. He points out the possibility of faking the presence of radio-active by-products in the atmosphere so that at distances up to 1000 miles from the point of the explosion, intelligence measurements of the type that A-2 proposed to CIG, would seem to indicate an authentic atomic explosion.

SECRET

SECRET

- 3 -

e. Data contained in the results of the Crossroads Tests would undoubtedly ~~show~~ the validity of the assumptions in paragraphs 5c and 5d. *determine*

6. During a recent visit to the Joint Research and Development Board the undersigned was told that the Board is acquiring all the data from the Crossroads Tests. Also, the undersigned was told by a member of the Board, presumably in a position to know, that the foreign intelligence activities associated with the atomic bomb were to be transferred to CIG.

7.

a. During the early part of September, A-2 forwarded a memorandum to the Director of Central Intelligence recommending that CIG coordinate a project to maintain a continuous radio-active by-products surveillance of the atmosphere at strategic points outside the United States in order to determine when an atomic explosion has occurred outside the United States.

b. On 23 September 1946, the Assistant Director for Reports and Estimates forwarded to ICAPS a draft of a memorandum from the Director of Central Intelligence to General Groves requesting that certain data from the Crossroads Tests be made available to CIG in order that the latter could determine whether the project proposed by A-2 is feasible.

c. On 27 September the Director of Central Intelligence and Mr. Edgar had a conference with General Groves to discuss the matter. At the conference General Groves would not comment on the proposed project.

d. On 16 October the undersigned was told by Mr. Edgar that he had been advised by the Director of Central Intelligence to forget the project.

8. It is recommended that CIG obtain authority from the Atomic Energy Commission to examine certain data in the results of the Crossroads Tests in order that CIG can determine if the project proposed by A-2 is feasible.

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Planning Staff, ORE

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~~Transmission~~
explosion 9/23/49
In October 1946 official US estimate
did not give USSR atomic bomb
until 1950-1953 (OR 53; 10/31/46)
In October 1948, estimate was
mid-1953 (OR 58; 48/10/27/46)

25/11/46
Capt Mc Callum
Noted - was